SUMMARY OF THE INVENTION:

Cancel the complete section "SUMMARY OF THE INVENTION"

Replace "SUMMARY OF THE INVENTION" as follows:

In view of the foregoing disadvantages inherent in the known types of socket heads for removing damaged and undamaged fasteners and techniques for facilitating such removal when the heads are rounded off now present in the prior art, the present invention provides an improved tool for the removing of damaged fasteners, such as nuts, bolts and studs and nuts or fasteners from long threaded studs. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved tool for the removing of damaged fasteners, such as nuts, bolts and studs apparatus and method which has all the advantages of the prior art and none of the disadvantages.

To attain this, the present invention essentially comprises a new and improved tool for the removing of damaged fasteners with rounded off heads from nuts comprising, in combination, a socket head having a partly cylindrical external configuration with an upper end and a lower end. The upper end has several flat projections that extend beyond the cylindrical body which allow it to

receive a verity of socket or wrench configurations. The top of the upper end has a square recess adapted to receive the end of a driver or ratchet wrench. The lower end of the tools head is fabricated with a major recess of a generally frustroconical configuration with a length constituting 50 percent or less of the overall body length. The major recess has an interior surface formed with a plurality of inverted L-shaped projections and the legs of the inverted L-shaped projections are at slight angles and depending on the fastener the angle of each tooth is 98 degrees and 105 degrees and have a radius at the base of both legs and the point of these inverted L-shaped projections can gradually flatten out past midway of the major recess to the major recess smaller diameter and these projections are integral with the socket and extending radially inwardly from the lower end with valleys intermediate the inverted L-shaped projections, thereby forming a plurality of angles with radial interior teeth. Each of the angles has an apex with two faces. The face of each angle is offset from the radius of the cylinder. The apex of each tooth is angularly oriented with respect to the axis of the cylinder. The axial interior of the major recess has a smaller diameter than the axial exterior of the major recess. The major recess continues through the socket head beyond the projections into and through the square drive at the upper end whereby when placed over the head of a damaged of a fastener, the socket head is rotated

with a ratchet motion. The teeth will pull downwardly over and into the damaged fastener biting into its exterior surface to effect a coupling there between for rotation of the socket head and associated fastener to effect its removal. The damaged fastener can be easily removed from this tool, in addition this tool will accept an undamaged fastener as well.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood

that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

It is therefore an object of the present invention to provide a new and improved tool for the removing of damaged fasteners, such as nuts, bolts and studs which has all the advantages of the prior art socket heads for removing fasteners and techniques for facilitating such removal when the heads are damaged or rounded off and none of the disadvantages.

It is another object of the present invention to provide a new and improved tool with much greater gripping ability for the removal of damaged fasteners such as nuts, bolts and studs which may be easily and efficiently

manufactured and marketed and a wedge proof removal of the damaged fastener from the tool.

It is a further object of the present invention to provide a new and improved tool for the instillation and removal of undamaged fasteners such as nuts, bolts and studs which is stronger and of a durable and reliable construction.

An even further object of the present invention is to provide a new and improved tool for the removing of damaged fasteners such as nuts, bolts and studs and removal of the damaged fastener from the tool, all of which is susceptible to low cost of manufacturing with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such a tool for removing damaged fasteners and techniques for facilitating such removal when the heads are rounded off economically available to the buying public.

Still yet another object of the present invention is to provide a new and improved tool for the removing of damaged and undamaged fasteners such as nuts, bolts and studs which provides in the apparatuses and methods of the prior art some of the advantages thereof, while simultaneously overcoming some of the disadvantages normally associated therewith.

Still another object of the present invention is to remove damaged fasteners wherein the heads have been deteriorated from rust or rounded off as through the use of an improper sized socket having teeth capable of gripping such heads.

Lastly, it is an object of the present invention to provide a new and improved device for the removal of undamaged and damaged fasteners with rusted or rounded off heads. The socket head has a partly cylindrical external configuration with an upper end and a lower end and with a square recessed surface in the upper end and is adaptive to receive the end of a turning tool. The lower end of the socket head is fabricated with a major recess of a generally frustroconical configuration. The major recess has an interior surface formed with a plurality of inverted L-shaped projections the angle of each tooth is 98 degrees and 105 degrees these projections are integral with the socket and extending radially inwardly from the lower end thereby forming a plurality of angles with radial interior teeth. Each of the angles has an apex with two faces. The faces of each angle are offset from the radius of the cylinder. The apex of each tooth is angularly oriented with respect to the axis of the cylinder. The axial interior of the major recess has a smaller diameter than the axial exterior of the major recess whereby when placed

over the damaged fastener and when the socket head is rotated with a ratchet motion, the teeth will pull downwardly over the damaged fastener and bite into its exterior surface to effect a coupling there between for rotation of the socket head and associated damaged fastener to effect its removal. The damaged fastener can easily be removed by tapping it out from the side with the square recess.

These together with other objects of the invention, along with the various features of novelty, which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS:

Cancel the complete section for "BRIEF DESCRIPTION OF THE DRAWINGS"

Replace "BRIEF DESCRIPTION OF THE DRAWINGS" as follows:

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 is a sectional side view of the tool and a bottom view.

Figure 2 is an exploded perspective view of the tool and a open ended wrench and associated damaged fastener to be removed.

Figure 3 is a closed end wrench design for removing a damaged or undamaged fastener.

Figure 4 is a pass through ratchet design for removing a damaged fastener on a long stud.

Figure 5a of Fig.5 is a bottom view of the tool with an undamaged nut inside and Figure 5b of Fig. 5 is a view of a single tooth's edge crossing the head of an undamaged bolt and Figure 5c of Fig.5 is a sectional view that shows one of the edges where the flats meet on the head of an undamaged fastener fully in the helix.

Similar reference characters refer to similar parts throughout the several views of the drawings.